

Serial No. 10/536,576
Docket No. TROLOGY 02.02
Amendment G

REMARKS

Claims 1, 7, 10-12, 14-15, 20, 29, 33, 35, 41, and 42 have been amended to clarify the invention, and to better define the invention over the prior art. Independent claims 1, 29, 33 and 41 have each been amended to positively recite the structure of the interferometric system. These recitations are fully structural, and as discussed below, distinguish the structure of claims 1, 29, 33 and 41 from the structure of the prior art. Claim 13 has been canceled. Claims 43-46 have been added. Support may be found throughout the Specification, for example, page 8, line 24-page 9, line 2; and Figures 1 and 4. Moreover, it is respectfully submitted that the claims, as amended, overcome the rejection under 35 U.S.C. § 112. No new matter has been entered by any of the foregoing amendments.

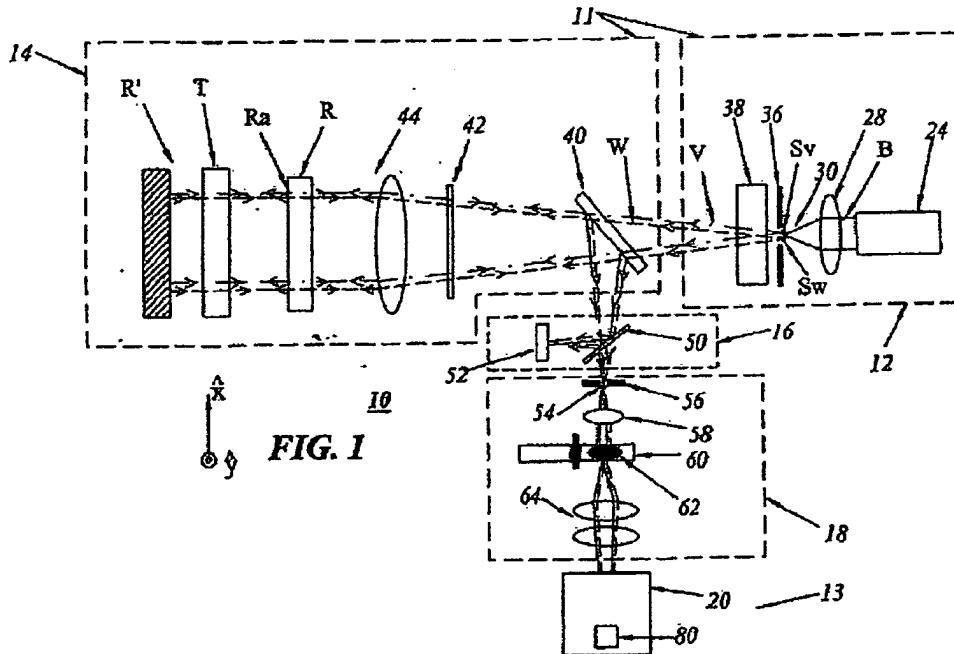
The rejection of claims 1, 3-11, 13, 14, 16-21, 26-33, 35, 40 and 41 under 35 USC §102 (b) as being anticipated by U.S. Patent No. 4,872,755 to Kuchel is respectfully traversed. Independent claims 1, 29, 33 and 41 require, in part, "at least a first and a second mutually orthogonally polarized beam of light ("wavefronts" in claim 33, "polarized beams" in claim 41), the first beam interacting with a series of optical components including a reference object and a test object along a first path and the second beam interacting with the series of optical components along a second path, wherein the first path is spatially displaced from the second path at each component of the series of optical components". Kuchel fails to teach at least this feature of independent claims 1, 29, 33 and 41.

Figure 1 of the subject application, provided herein for convenience, illustrates the interferometric system in detail:

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In describing the interferometric system with respect to FIG. 1, Applicants teach of two mutually orthogonally polarized wavefronts/beams, designated by the variables "V" and "W." See at least page 6, line 27 to page 7, line 2. As can be seen, the wavefronts/beams V and W exit the polarization beamsplitter 38 and are displaced with respect to each other, such that wavefront/beam V is spatially displaced in a horizontal direction (along the x axis) from wavefront/beam W. See page 7, lines 3-10. The wavefronts/beams V and W travel through a series of optical components, which may include a non-polarizing beamsplitter 40, before they encounter reference object R and test object T. See page 7, lines 11-19. A percentage of each of the wavefronts/beams V and W reflects off of reference object surface Ra, while another percentage travels through reference object R and is reflected off of test object T. See page 7, lines 18-29.

As can be seen in FIG. 1, the wavefront/beam V follows or has a path, as indicated in FIG. 1 by the intermittently dashed line (*i.e.*, dashes with dots) labeled as "V." Likewise, the

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wavefront/beam W also follows or has a path that is indicated by the fully dashed line labeled as "W." Also clearly visible in FIG. 1, the beams encounter the same optical components over the path of the beams, but are spatially displaced from each other at each common component of the pathway throughout the interferometric system 10. *See* at least page 4, line 27 where Applicant discloses, "overlapping test and reference beams."

The common path and spatial displacement of the wavefronts/beams V and W is fully supported by the original specification, including page 6, lines 11-13 (common optical path), page 7, lines 3-29 (the source module 12 and interferometry module 14), page 8, line 24 to page 9, line 2 (the alignment module 16) and FIGS. 1 and 4. In particular, FIGS. 1 and 4 clearly depict the spatial displacement between wavefronts/beams V and W at each common component of the optical pathway. Thus, this requirement is sufficiently described in the specification such that one skilled in the relevant art could easily determine that the Applicant has possession of the claimed requirement at the time the application was filed. Furthermore with respect to FIGS. 1 and 44, MPEP §2163.06 states, "information contained in any one of the specification, claims or *drawings* of the application as filed may be added to any other part of the application without introducing new matter." (Emphasis added).

The sole reference cited, Kuchel, fails to anticipate at least this requirement of independent claims 1, 29, 33, and 41. Kuchel is directed to an interferometer for measuring optical phase differences, and teaches the use of "at least one optical delay device" for creating interference between particular beams with differing optical path lengths. *See* Kuchel, Col. 2, lines 47-52 and Col. 4, lines 47-53. In the previous Office Actions, for example, the Office Action dated January 14, 2011, the Examiner cites FIGS. 5 or 9 of Kuchel as teaching that the paths of the beam paths are spatially separated at a location of the reference object and the test

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object. See page 9. However, neither of FIGS. 5 or 9, nor any other part of Kuchel anticipates independent claims 1, 29, 33, or 41.

Specifically, Kuchel fails to teach, at least, of a first path that is spatially displaced from a second path at each common component of the optical pathway. With respect to both FIGS. 4 and 5, there is no spatial displacement between the paths of the beams from the non-polarizing beamsplitter 12d (FIG. 4) and the test object 25. FIG. 5 clearly depicts beams without spatial displacement on the left side of the structure, such as before lens 33 (i.e., which is between the non-polarizing beamsplitter 12d and the lens 33 in FIG. 4), between lens 33 and halfway plate 50a, and within the halfway plate/Wollaston prism arrangement.

Kuchel ultimately fails to teach of any structure where a first beam interacts with a series of optical components including a reference object and a test object along a first path and a second beam interacts with the series of optical components along a second path, wherein the first path is spatially displaced from the second path at each component of the series of optical components as required by the claims. Therefore, Kuchel cannot anticipate the requirements of independent claims 1, 29, 33, and 41. Claims 3-11, 14, 16-21, 26-28, 30-32, 35 and 40, and new claims 43-46 all depend from one of independent claims 1, 29 or 33, as the case may be, and are therefore allowable under Kuchel for at least those reasons adduced above relative to the independent claims, as well as for their own additional limitations.

The rejection of claims 12, 15, 16 and 22-25 under 35 USC §103 (a) as being unpatentable over U.S. Patent No. 4,872,755 to Kuchel also is in error. Claims 12, 15, 16 and 22-25 each depend from independent claim 1. The deficiencies of Kuchel with respect to independent claim 1 are discussed above. It is respectfully submitted that claims 12, 15, 16 and

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22-25 are allowable over Kuchel for the same reasons adduced above relative to claim 1, as well as for their own additional limitations.

Having dealt with all of the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action is respectfully requested.

Add claims fees (three added dependent claims) are being paid via efs web in the amount of \$78.00.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391.

Respectfully submitted,

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